

**WHAT IS CLAIMED IS:**

1. A torque measuring device for a rotating body, comprising:

5 a rotary section composed of a first flange to be joined to a driving shaft powered, a second flange to be joined to a driven shaft loaded, and a cylinder having a hollow and having the first and second flanges formed respectively on both edges thereof;

10 a plurality of torque detectors provided at an inner circumference of the cylinder;

at least one light emitting element provided at an outer circumference of the rotary section and adapted to emit light according to an output from the torque detectors thereby generating an optical signal;

15 a light receiving fiber disposed outside the rotary section and adapted to receive the optical signal from the light emitting element; and

a rotary transformer composed of a primary coil constituted by an annulus which is disposed to surround the rotary section and which is of two-part separable structure and a secondary coil provided at the outer circumference of the rotary section, the rotary transformer being adapted to supply electrical power to the rotary section.

2. A torque measuring device according to Claim 1, wherein  
25 the torque measuring device includes a plurality of light emitting elements and the light receiving fiber has a predetermined receiving length thereby receiving at least

one optical signal from the light emitting elements constantly and continuously regardless of a rotational position of the rotary section.

3. A torque measuring device according to Claim 1 ,  
5 wherein the light receiving fiber has right-angle bends formed respectively at its both end portions.

4. A torque measuring device according to Claim 3, wherein shields for blocking out the optical signal from the light emitting elements are provided respectively at the right-  
10 angle bends of the light receiving fiber.

5. A torque measuring device according to Claim 2, wherein the predetermined receiving length of the light receiving fiber is adapted to receive either one or two optical signals from the light emitting elements regardless of the  
15 rotational position of the rotary section.